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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,041	12/01/2003	Martin Leiendocker	A 91874	1537
7590	10/17/2005		EXAMINER	
Walter Ottesen Patent Attorney P.O. Box 4026 Gaithersburg, MD 20885-4026			CADUGAN, ERICA E	
			ART UNIT	PAPER NUMBER
			3722	

DATE MAILED: 10/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/724,041	LEIENDECKER, MARTIN	
	Examiner	Art Unit	
	Erica E. Cadogan	3722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 01 August 2005.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-11 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-11 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 01 December 2003 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1.) Certified copies of the priority documents have been received.
 2.) Certified copies of the priority documents have been received in Application No. _____.
 3.) Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Noting that there are multiple “axes” set forth in the independent claims 1 and 11, it is unclear with respect to what/which axis or frame of reference the term “radially” (introduced by the amendment of 8/1/05) is measured or determined.

Claim Rejections - 35 USC § 102

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claims 1-9, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 5,971,678 to Linderholm, for example.

Linderholm teaches a tool holder 22 that holds a tool 24, and that is driven in rotation by spindle motor 12 about tool rotation axis 26 (see Figure 1). Additionally, the tool is moved transversely with respect to this tool rotation axis to enable the tool to perform cutting of openings that are larger in size than the diameter of the tool itself. (Thus, the tool inherently has both end or face cutting edges and peripheral cutting edges, or else it would not be able to cut such an opening as described). See col. 6, lines 7-65, col. 7, lines 15-29, and especially col. 7, lines 43-51.

Re claims 4-6, Linderholm explicitly teaches that the spindle motor 12 can be powered electrically, pneumatically, or hydraulically (col. 4, lines 60-62).

Re claim 9, note that the tool holder 22 is connected to the drive spindle including spindle motor 12 of the machine tool as described previously.

Re claim 7, as broadly claimed, note that an assembly including the cutting tool 24, the tool holder 22, and the spindle motor 12 is moved transversely, such as in direction 74 (Figure 2), relative to fixed mounting plate 90, for example (see also Figure 4 and Figure 2, and see col. 6, lines 7-65, col. 7, lines 15-29 and col. 7, lines 43-51). Thus, with respect to claim 7, note that the assembly including the tool 24 and spindle motor 12 form part of a “tool head”, and that thus, the cutting tool 24 is “part” of a “tool head” that is “connectable” to the “tool holder” 22.

Re claim 8, note also that the just-described “tool head” includes the spindle motor 12, which Linderholm explicitly teaches can be powered pneumatically (col. 4, lines 60-62).

Re the use of the claimed “arrangement” being “for forming a control window in a cylinder housing for a two-stroke internal combustion engine...”, it is noted that in an apparatus claim, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 370 F.2d 576, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 312 F.2d 937, 939, 136 USPQ 458, 459 (CCPA 1963). In the instant case, since Linderholm explicitly teaches that the device is utilized

to machine openings in workpieces, it is considered capable of cutting a “control window” as claimed.

Additionally note that “[i]nclusion of material or article worked on by a structure being claimed does not impart patentability to the claims.” *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). See also MPEP section 2115. In other words, the apparatus is blind as to the workpiece on which it operates (i.e., the tool doesn’t care if it’s working on a two-stroke engine, or on a cube-shaped workpiece blank).

Claim Rejections - 35 USC § 102/103

5. Claim 10, as best understood, is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Linderholm as applied to claims 1 and 9 above.

Linderholm teaches all aspects of the present invention as set forth in the above rejection based thereon. Additionally, since the toolholder is fixedly connected for rotation to the spindle motor, it appears that the toolholder is, as broadly claimed, “part” of the drive spindle.

In the alternative, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have made the toolholder integral with the spindle, since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. *Howard v. Detroit Stove Works*, 150 U.S. 164 (1893), for example.

Claim Rejections - 35 USC § 103

Art Unit: 3722

6. Claim 11, as best understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over JP-58-155114 ('114) (and the English abstract thereof) in view of any one of U.S. Pat. No.'s 5,383,750 to Satran et al., 4,733,995 to Aebi, or 4,995,766 to Coleman.

'114 teaches the machining of a scavenging ports 4, considered "control windows", in a cylinder housing for a two cycle engine (see English abstract and Figures 1-2). Note that T type cutter 5 is positioned within the interior space of the cylinder (Figures 1-2). Note also that the cutter inherently must be driven radially towards the cylinder wall in a direction having at least a component that is orthogonal to the cutter axis, or else the cutter would not be able to be positioned as shown in Figures 1-2. Additionally, the longitudinal central axis of the cutter is considered to define a rotational axis about which the tool holder "can" be pivotally attached.

'114 does not explicitly teach a "tool holder" of the cutter 5 that has a "free end withdrawably positioned in said interior space of said cylinder".

However, each of Satran (see Figures 7a-7b), Aebi (see Figures 1-4), and Coleman (see Figures 1-3, for example) teach T type cutters that utilize a holder (shown in Figures 7a-7b in Satran, at least element 2 in Aebi, and body 10 in Coleman) having replaceable cutting inserts (shown in Figures 7a-7b in Satran, elements 11 in Aebi, and elements 12 in Colman).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have substituted the specific T type cutter utilizing a holder and replaceable cutter inserts as taught by any of Satran, Aebi, or Coleman for the generic T type cutter taught by '114 for the purpose of increasing the life of the cutter as taught by Satran (see col. 2, lines 28-35, noting that since the cutting inserts are indexable, each index provides additional life), for providing a cutter that reduces tool vibrations, thus increasing the tool life as

Art Unit: 3722

taught by Aebi (col. 1, lines 31-40), for providing a cutter that is stable and has reduced chatter (Coleman, col. 1, lines 8-12), or for reducing cutter costs, since the provision of cutter inserts means that once the cutting insert wears out, it can be replaced with another insert, rather than having to replace the entire tool holder/tool, as would be a benefit readily understood by one having ordinary skill in the machining art. Note that the provision of the cutter holder in combination with cutting inserts provides a configuration of cutting device wherein, when in the position shown in Figure 1 of '114, the holder would be "withdrawably positioned in said interior space of said cylinder".

Response to Arguments

7. Applicant's arguments filed August 1, 2005 have been fully considered but they are not persuasive.

Applicant asserts the following:

The basic idea of the applicant's invention is nowhere suggested in Linderholm, namely, providing an arrangement with which the interior wall of a cylinder can be machined with a cutting tool whose drive axis is orthogonal to the rotational axis of the tool holder. More specifically, nowhere in Linderholm is there any suggestion which could lead our person of ordinary skill to hit upon the feature and limitation of applicant's claim 1 which provides for:

"a driveable cutting tool mounted on said tool holder at said free end thereof and having a drive axis lying essentially orthogonally to said rotational axis;"
(emphasis added)

However, this is not persuasive. It is noted that the tool 24 taught by Linderholm is rotated about its longitudinal axis 26 (Figure 1), and that additionally, the tool is rotated about another axis 54 offset from and parallel to that longitudinal axis to enable the tool to perform cutting of openings that are larger in size than the diameter of the tool itself (see especially col. 7,

Art Unit: 3722

lines 43-51). Note that the rotation of the tool about the offset axis 54 creates an orbiting-type motion of the cutter 24 about the axis 54. The path or "drive axis" that the tool follows as it orbits axis 54 is transverse to or "orthogonal" to the rotational axis 26 of the tool (i.e., as viewed in Figure 2, for example, as the tool 24 axis 26 orbits axis 54, the entire length of the tool moves in a direction that is in a horizontal plane extending into/out of the plane of the paper), and thus, the claim language is met.

It is further noted that the movement of the tool in such a plane means that the tool moves "radially" or "transversely" with respect to the axis 54, which is also the longitudinal center axis of the hole or opening being machined -- see col. 7, lines 43-51 and especially lines 47-51.

Additionally it is noted that Applicant has asserted that "[I]n contrast to the applicant's invention, Linderholm discloses an arrangement which does provide for a rotatable tool holder but provides a tool for cutting a hole whose rotational axis is coincident with the rotational axis of the tool holder." However, it is noted that the features upon which applicant relies (i.e., apparently, some tool for cutting a hole, which tool's rotational axis is *not* coincident with the rotational axis of the tool holder) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification (or elsewhere) are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant also asserts the following:

An adjusting device in the drilling arrangement of Linderholm is compared in the action to the transverse movement of the tool holder of the applicant's invention. The adjusting device in the drilling arrangement of Linderholm provides for a transverse displacement of the tool via a longitudinal displacement of a radial offset needle 52 in the tool holder. This radial offset needle has conically-shaped surfaces. In contrast to applicant's invention, the tool holder in Linderholm remains fixed in the transverse direction of its rotational axis.

Art Unit: 3722

It appears that Applicant is asserting that even though the radial offset mechanism “provides for a transverse displacement of the tool...” (the tool being element 24), that somehow the “tool holder” 22 does not move in concert with the tool 24 when the tool 24 is performing this transverse movement. However, this is not persuasive.

Examiner agrees that the transverse movement of the tool is created via a longitudinal displacement of a radial offset needle 52 having a conically-shaped surface (see Figures 1-3, 5, and col. 5-6, for example). However, Examiner disagrees with Applicant’s assertion that the tool holder does not participate in this transverse movement. Note that axial movement of needle 52 causes the conical end 56 thereof to move vertically (vertically is as viewed in Figure 3, for example). Such vertical movement causes, via contact of the conical end 56 of the needle 52 with the mating conical surface 60 of sliding block 40 (Figure 3, col. 5, lines 18-35, for example) the corresponding radial movement of sliding block 40 (and thus spindle motor body 20, tool holder 22, and tool 24 which are affixed therewith, see col. 6, lines 52-65, for example). Thus, the tool holder 22 and tool 24 move together “transversely”.

Applicant also asserts the following:

It might be the case that in Linderholm, holes having greater diameters than that of the tool are possible via a transverse movement of the tool. However, this has nothing to do with the applicant's invention. With the known displacement of the bore head via the radial offset needle, only adaptations of the drill hole dimensions for curved surfaces are provided in order to achieve the required cutouts for attachment bolts in the area of application of the drill unit for thin and curved composite materials (please see column 1, starting at line 10). The transverse displacement of the drilling tool therefore takes place only to a slight extent in correspondence to the conical taper of the offset needle.

However, this is not persuasive.

Firstly, it appears that Applicant may be asserting that Linderholm teaches away from the present invention since Linderholm mentions that the tool can be used to machine “thin curved

Art Unit: 3722

shells". However, it is noted that Linderholm does not set forth a teaching that would preclude the device thereof from being used to machine other types of workpieces, and particularly, there is no teaching set forth in Linderholm that would lead one reading the Linderholm patent to conclude that using Linderholm's device to machine an opening or "control window" in a housing is a bad or undesirable thing to do. Thus Linderholm does not "teach away" from the present invention. Note also that Linderholm does not teach that their machine can "only" be used to machine "thin and curved composite materials" as implied by Applicant. See especially column 1, lines 5-8 of the Linderholm patent, which sets forth:

The present invention relates to a method and spindle unit for producing a hole or a recess in a work piece which may include flat or curved sheets of fiber-reinforced composite material, metal or combinations thereof.

Additionally, regarding Applicant's assertion that the transverse displacement of the drilling tool "takes place only to a slight extent in correspondence to the conical taper of the offset needle", it is noted that no degree or value of the amount of transverse displacement is set forth in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant has also asserted the following:

It is, however, to be noted that the tool axis in Linderholm is always parallel to the rotational axis of the tool holder for every transverse adjustment of the drilling tool. A radial machining of a cylinder wall is therefore impossible with the configuration taught by Linderholm.

However, this is not persuasive. It is unclear what relevance the tool axis 26 remaining parallel to the orbiting axis 54 of the tool 24/toolholder 22 has to the possibility of radial machining of a cylinder wall.

Art Unit: 3722

Again, it is noted that the tool 24 taught by Linderholm is rotated about its longitudinal axis 26 (Figure 1), and that additionally, the tool is rotated about another axis 54 offset from and parallel to that longitudinal axis to enable the tool to perform cutting of openings that are larger in size than the diameter of the tool itself (see especially col. 7, lines 43-51). Note that the rotation of the tool about the offset axis 54 creates an orbiting-type motion of the cutter 24 about the axis 54. The path or "drive axis" that the tool follows as it orbits axis 54 is transverse to or "orthogonal" to the rotational axis 26 of the tool (i.e., as viewed in Figure 2, for example, as the tool 24 axis 26 orbits axis 54, the entire length of the tool moves in a direction that is in a horizontal plane extending into/out of the plane of the paper), and thus, the claim language is met.

It is further noted that the movement of the tool in such a plane means that the tool moves "radially" or "transversely" with respect to the axis 54, which is also the longitudinal center axis of the hole or opening being machined -- see col. 7, lines 43-51 and especially lines 47-51.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

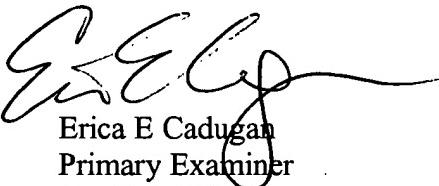
Art Unit: 3722

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erica E. Cadugan whose telephone number is (571) 272-4474. The examiner can normally be reached on M-F, 6:30 a.m. to 4:00 p.m., alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Boyer D. Ashley can be reached on (571) 272-4502. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Erica E Cadugan
Primary Examiner
Art Unit 3722

ee^c
October 13, 2005